Ewing, Bronwyn F. (2005) *Discourse and the construction of identity in a community of learning and a community of practice*, in Stehlik, Tom and Carden, Pam, Eds. *Beyond communities of practice: theory as experience*, chapter 8, pages pp. 149-170. Post Pressed.

This chapter explores the articulation of Critical Discourse Theory and a Social Theory of Learning through their common concern with identity, participation, and membership; it will also address its application in methodological analysis. The case in point is a study in progress (Ewing 2005) addressing the nature and effects of the Discourse of Mathematics on identities of participation and non-participation in Mathematics classrooms, construed as learning communities. In doing so, it draws together aspects of the work of Lave and Wenger (1991) and Wenger (1998) on communities of practice and that of Fairclough (1995; 1992; 2001) on Critical Discourse Theory and Critical Discourse Analysis.

THE SOCIAL EXPERIENCE OF LEARNING

Drawing on the work of Wenger (1998), learning is seen to relate strongly to a person's practices, their ability to negotiate meaning and to formulate an identity in the process. Through these experiences making sense becomes a social matter; experience and its social interpretation informing each other. Eckert (2000) extends this understanding further to suggest that through the interplay of social participation and reification[1] learners give shape to their experiences. These experiences and the knowledge formulated from them then serve as a basis for further building and negotiation of meaning. They provide a purpose for a learning community, allowing learners to participate in the language and activities of that community. Put differently, experience is the crucial factor in the linked development of social identities, social relations and knowledge (Gee, 1996). In short, learning of this sort is a process of social participation and membership in a social group or community, here S/Mathematics.[2] It is what brings learners together and allows Mathematics to have relevance and meaning.

Applying this Social Theory of Learning to Secondary students of Mathematics, it follows that they learn through membership, engagement, and participation in the actions, interpretations and interactions of their Mathematics classrooms. Here they shape and define their identity and social role as students of Mathematics as they interpret and define their own actions and those of others. These processes become their resources for guiding further interactions and decision-making in the classroom – a social learning context.

Membership and an Identity Kit

Identity, in this chapter, is viewed as a complex weaving of participation and reification, through which 'experience and its social interpretation inform each other' (Wenger 1998, p.151). As learners interact with and participate in the relations of a community, and negotiate meaning, their experiences work to produce their identity. Identity is central to participation and membership. Gee (1996) indeed speaks of the necessity for an appropriate 'identity kit' (p.142) to become a member of a group,

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1 In this study, this concept is taken to mean aspects of human experience and practice which are 'congealed into fixed forms and given the status of objects' (Wenger 1998, p.59).

2 Capital S for S/Mathematics denotes Secondary Mathematics.

with learners taking on social roles that hold the language, values and beliefs suited to that group.[3] As each learner's relations with other members of the group develop and extend, they construct an identity which threads participative experience with the negotiating of meaning (Gee 1996).

This conception of identity has profound implications for learning communities such as Mathematics classrooms. Students identify as learners of Mathematics as they engage in learning and acknowledge one another as participants in that learning. Making sense of their social context gives rise to appropriate forms of belonging in the classroom and meaningful participatory experiences within it. In so doing, they develop and accept an 'identity kit' (Gee 1996) which defines them not only as students of Mathematics but as particular types of students – for example, brilliant, successful, plodder or failure.

Other recent literature recognises the social influences on identity construction. Eckert (2000), for example, suggests that identities are constituted not only by what a person is but by what they are not. She points out that they emerge around the social practices of communities that differentiate people on the grounds of their participation or non-participation in such communities. Gee (1996) argues that minority and disadvantaged students are less likely to participate in school-based discourses. They are more likely to shape an identity of non-participation based on marginality (Lave & Wenger 1991) because they are excluded from the school community as a consequence of school discourses being substantially different from or indeed in conflict with their home discourses. Students from these groups are more likely to see themselves as identifying with and belonging to community of failures since they are seen as lacking in Mathematical ability (Cotton 2002). However, the question of who is learning what, and how much (or how little) is in some degree a question of how many interactions learners participate in, what sort of interactions they are, and who has access to the discourse in play.

The complexity – participation and non-participation

Wenger (1998) argues that identities shaped in communities involve a combination of participation and non-participation. Initial experiences of non-participation, he states, do not always lead to an identity of non-participation. Rather, participation on the periphery of a community provides exposure to the practices of that community. This form of participation he describes as 'non-participation of peripherality' (p.165); it engages new members and affords them the experience of sensing how the community articulates itself. In doing so, it provides the neophyte with access to its members, their negotiated enterprise and their repertoire of resources. To move inbound to full participation, new members 'must be granted enough legitimacy to be treated as potential members' (p.101).

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[3] The reader may note some similarity here to Goffman's (1972) classic treatment of the presentation of self in everyday life, and the assumption of different persona for different contexts.

If, however, a learning community such as a Mathematics classroom ignores, neglects or rejects a new member, learning for that person is clearly more difficult. As a consequence, putative learners may be kept in marginal positions in their community or even excluded from it because of the ingrained practices of that community. In this case, 'non-participation of marginality' (Wenger 1998, p.167) dominates in such a way that 'conceiving of a different trajectory within the same community' (p.167) becomes very difficult or impossible. When learning is seen as worthwhile by students, they are more likely to construct an identity of participation with the processes and knowledge of the Mathematics classroom, but if that learning appears irrelevant or inaccessible, an identity of non-participation and withdrawal seems almost inevitable.

If, then, as Sinclair (2004) has stressed, participation is 'multidimensional' (p.108), what does it entail? Crucially, as Hill, Davis, Prout and Tisdall (2004) observe, participation implies social inclusion; they note also such aspects as collaboration, equity,[4] or at least fairness, the importance of learners contributing to the agenda, respect for the rights of learners, and 'a common and clear but flexible ethical basis' (p.91). Quaghebeur, Masschelein and Nguyen (2004) address the paradox of participation, in which 'a strong commitment to emancipation' (p.154) is often combined with 'specifically imposed engagements from the participants' and a reliance on 'very directive...methodological measures and guidelines' (p.154). That is, students are presented with 'a specific way in which they should practise their freedom' (p.162). To resolve this double bind, these authors argue there should be negotiation about the project itself, with the opportunity for learners to express their objectives and even to 'contest and question the aims and assumptions of the project' (p.162).

A number of models seeking to explicate the effectiveness of participation in learning communities have been developed (See for example, Lardner, 2001; Shier, 2001; Treseder, 1997). However, Treseder's (1997) model of participation articulates Wenger's (1998) views of the range of different forms of participation in a situation involving children and adults. Treseder (1997) has indicated five dimensions to participation: assigned but informed, consulted and informed, adult-initiated but shared decisions with children, child-initiated but shared decisions with adults, and child-initiated and directed. Within each of these dimensions, young people's attitudes and views are regarded as an important component of their participation and learning. As a minimum, students need to see that they are valued, listened to, and respected. However, what this model also raises is the issue of power and the sharing of power between those in the community.[5]

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[4] It should be noted that Lave and Wenger (1991) explicitly denied that a community of practice was egalitarian.

[5] Arguably the initial work of Lave and Wenger (1991) and Wenger (1998) neglected this issue. The issue of power in social relations is addressed more fully by Critical Discourse Theory.

Clearly then, there are varying degrees of participation and non-participation, and the initial relations of non-participation can be either enabling or problematic (Wenger 1998). *Figure 1: A model of participation in S/Mathematics classrooms* is an attempt to present this issue more fully. In doing so, it indicates the level of participation across the three aspects of Wenger's explanation addressed above: identity of participation, identity of non-participation of peripherality, and identity of non-participation of marginality. These forms of participation and non-participation are threaded with Treseder's model.

Examination of the different forms of participation in Figure 1 indicates there are barriers to student participation in Mathematics classrooms, each having serious implications for student learning. Rajani (2000) suggests that when students are told what to do without really knowing or understanding why, a barrier exists between the teacher and students. As with the students described later in this chapter, some will contest or resist what is taught and the way it is taught because they do not understand the preferred or dominant discourse of the Mathematics classroom, while others will withdraw into passive indifference. This situation keeps many learners in marginal positions, while others are either excluded or exclude themselves. In short, their opportunities are closed by the ingrained practices of that community.

Participation then has broad implications for understanding and supporting learners. It is considered a complex yet important process for learning, as it affords opportunities for students to be active members of their learning community. It allows opportunities for the development of the skills of communication, negotiation and decision-making (Sinclair 2004). It also provides students with the chance to construct and shape their identity in relation to that community (Wenger 1998).

Identity and participation in a learning community

In communities of learning the integration of students' contributions affords opportunities for negotiating meaning with other learners and teachers (Matusov 1999; Renshaw & Brown 1997; Rogoff et al. 1998). Through these experiences students and teachers develop relations that are supportive of learning (Matusov 1999). A community of learning entails that

> building the classroom community and learning the curriculum are the same thing; members of the classroom learn through building a community and at the same time build a community through their learning. (Matusov 1999, p.163)

Through collaborative endeavour in such a community, learning is about transformation through participation. Students and teachers are active participants in the process. Teachers assume some responsibility for guiding the process, including the provision of opportunities for student voice; students learn how to participate and manage their learning (Rogoff et al. 1998). Through this process, teachers provide the conditions that sustain a collaborative learning community (Renshaw 2002). In this context, participation implies some presumption of empowerment of those involved – that students have reason to believe that their involvement will make a difference in their learning. Closely allied to this point is the level of power sharing between teachers and students.

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The Apprenticeship -- A Community of Practice

Lave and Wenger (1991) first described a community of practice through their ethnographic studies of apprenticeship. Their intention was to establish what these studies might contribute to understanding of learning. Primarily, their interest was with the ways in which meanings, beliefs, and understanding were negotiated and enacted in particular practices, such as tailors, butchers and midwives. Subsequent work by Wenger (1998) built on this early work to include identity of participation and community of practice. The identity of the learner in this context is constructed through training.

Communities of practice are contexts where students learn and negotiate meaning through mutual engagement in joint enterprise and develop a shared repertoire and a sense of belonging. Practice in such communities exists because people engage and negotiate meanings with one another (Wenger 1998). It resides in a community of people and the relations of mutual engagement by which they can do whatever they do (p.73). Membership in such a community is through the negotiation of joint enterprise. It is defined by the participants in the process of pursuing it. Being included in what matters in such communities is a requirement for being engaged in a community's practice.

Identity, discouse, and communities of learning

Identity, then, as membership of a particular community, is formed by continuing participation in that community's practices, its shared understandings of how to act, how and when to speak and what to think – in short through entering into its discourse. Discourse then, provides the connections between social identities, social relations and knowledge (Gee 1996). It provides a kind of identity kit for particular social groups who have tacit rules about membership, and how to think and behave to sustain this membership (Gee 1996). Members maintain and enact their community as they draw on its discourse to communicate their common understandings and to express their membership and their identities as members.

In short, and as mentioned previously, a discourse puts forward particular viewpoints, concepts and values, but in doing so, it has the potential to marginalise or even exclude viewpoints and values considered important to other discourses. Thus, it determines who is an insider and who is not (Gee 1996). In this regard then, such discourses and the ensuing social struggles are linked to the forms of participation and identities constructed in such contexts. It is now possible to restate the focus of this chapter as the processes by which the discursive practices[6] of

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[6] Discursive practices are constitutive of a discourse and include the practices of Mathematics and of teachers utilised to teach Mathematics.

S/Mathematics classrooms shape the various identities, interactions, and subject positions[7] occupied by students in such contexts.

APPLYING CRITICAL DISCOURSE THEORY THROUGH CRITICAL DISCOURSE ANALYSIS

Understanding the term discourse and how it is defined here provides a useful framework from which to analyse text[8] produced by various members – here students of a TAFE[9] Mathematics classroom. By analysing their texts from an interview situation,[10] I gain an insight into the generation and reproduction of different social practices that have been institutionalised in such settings. Students' spoken texts are considered evidence of the construction of social identities, and how social relationships are set up in the Discourse of Mathematics, and between Discourse participants, that is, the teacher and students in S/Mathematics and TAFE Mathematics classrooms. It is under these circumstances that the boundaries between teachers and students may be the focus of contestation, resistance, struggle, and power (Fairclough 1992). For students then, the consequence of social struggles over Discourse means that the teacher (as the powerful participant) can exercise power and authority over the contributions of students (less powerful participants).

For my purposes, I have applied Critical Discourse Analysis (CDA) at the macro level only, that is, to the analysis of social practice in relation to social structures (Fairclough 1992), here, the discursive practices situated within the Discourse of Mathematics as evidence from students' texts.

That said, the participants of my study provided interpretations of their experience based on external cues, for example, the physical situation, or what has previously been said or done. These interpretations were considered to be their representations of an institutional social order, here, the Mathematics classroom. These particular interpretations of the situation also determine which Discourse types are drawn upon (Fairclough 2001, p.121).

The purpose of an explanation of these interpretations is, in turn, to portray a Discourse as part of a social process, thus showing how it is determined by social structures, such as the relations of power, and the process and practices of social struggle (Fairclough 2001, p.135). In this way, and as Fairclough (2001) notes,

> we can show what power relationships determine discourses; these relationships are themselves the outcome of struggles, and are established (and ideally, naturalized) by those with power (p.136).

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[7] Subject position is defined as a particular way of doing or not doing things within a particular discourse type. What teachers and students are allowed or not allowed to say must be in line with the discoursal rights.

[8] Text refers to a spoken or written product, for example, the interview transcript is termed a text (Fairclough 1992).

[9] TAFE refers to Technical and Further Education in Australia.

[10] The texts and their contexts are presented in detail in Ewing (2005).

Fairclough's (2001, p.122) situational context has been adopted as a tool to address these issues (see Figure 2 below).

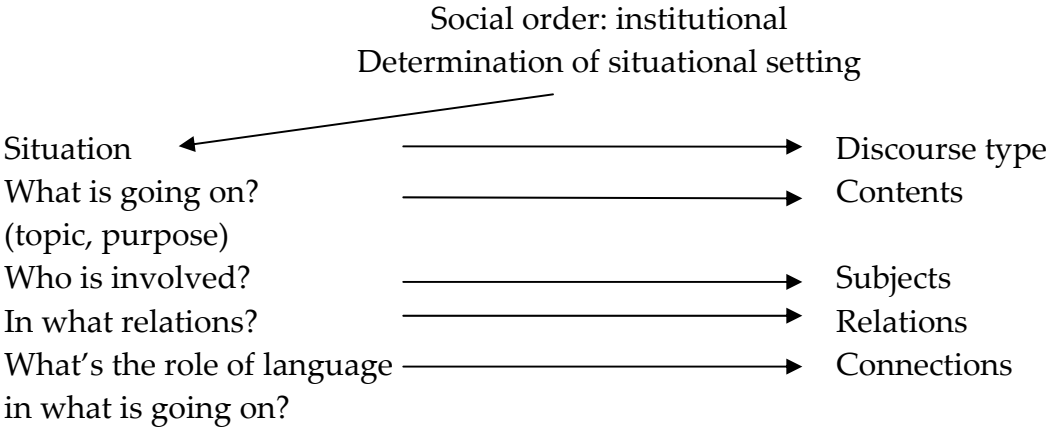

Figure 2: Situational contact and Discourse type

To illustrate, I focus on part of an interview text from Katrina, a participant in my study. In this text, she is interpreting her experiences of learning Mathematics at school and at TAFE.

I did not like it because it was too hard. They would just like explain it real quick and then write it on the board, very confusing. ...they just pretty much talked and then wrote it on the board. They did not have like a teacher that came around like they have here. ...sometimes I would write down notes because I just did not get anything. ...it was just basic stuff sort of, sort of revision work. ...but when we got onto the new stuff we just did not, I just did not get any of it.

What is going on?: This question allows the researcher to identify the situation, that is, the topic, and the purpose associated with the situation. In the excerpt above Katrina is describing her experiences of learning Mathematics at school. The purpose of this description is to elicit and document her interpretations of her experiences.

Who is involved?: With this question, the researcher is trying to specify which subject positions are set up. Subject positions are multi-dimensional (cf. Fairclough 2001), but for the purpose of this study they are derived from how an institution 'ascribes social identities to the subjects who function within it' (p.123). In the excerpt above, there is a female who is a student, and more than likely occupies a subject position considerably lower than her peers because of her difficulties with understanding the Discourse of Mathematics.

In what relations?: This question considers subject positions in detail. More specifically, it focuses on the relationships of power that are set up and enacted in certain situations. In this case, the researcher is more concerned about the relations between students and teachers. For instance, delivery of content and simply teaching in a didactic manner seem to be more pressing for the teacher than supporting Katrina, who is a learner in the same context. Consequently, the teacher has the power over the Discourse of Mathematics and the discursive practices utilised in S/Mathematics classroom.

What is the role of language?: Language is used as an instrument that is considered a part of a wider institutional objective (Fairclough 2001). Thus, 'texts are tied to the

situational contexts in which they occur' (p.124). In the excerpt above, the use of the blackboard, the teacher's explanations, the pace of content delivery (new and old), the revision work, and the lack of support, are indicative of the degree of control and power which the teacher exercises not only over Katrina but a number of aspects of a Mathematics classroom.

This excerpt highlights a number of relevant issues. First, Katrina's experiences indicate the outcome of her struggles established by the power the teacher possesses. This power has been determined by the discursive practices situated in the Discourse of Mathematics and the institutional setting in which it has occurred, in Katrina's case, the S/Mathematics classroom. This excerpt also signifies the powerful effects and constraints of the Discourse of Mathematics on the relations between teachers and students, which in turn, affects the kinds of identities shaped in the Mathematics classroom.

In this regard, for some students, like Katrina, it is highly likely that they will be excluded or marginalised from accessing the Discourse of Mathematics, because it is in conflict with their language (home or community-based language), ways of acting and thinking, and their values, beliefs and attitudes. Further, these same students may not identify the tacit rules required to sustain membership in their Mathematics classrooms because of their difficulties with understanding the Discourse of Mathematics. Consequently, these students are positioned as low in status in Mathematics classrooms. In the next section, this aspect together with students' experiences of learning Mathematics are elaborated in more detail to emphasise the links between, identity, participation, non-participation, and membership to learning communities.

What students say about their Mathematics learning

In this section, students' excerpts are provided together with an analysis. A discussion follows the excerpts to emphasis the issues for students in Mathematics classrooms. In the first excerpt, Asia provides an account of a Mathematics lesson. She explains that she learned from a textbook, with the teacher providing little explanation of how to do the Mathematics. Asia then very clearly expresses her dissatisfaction with learning Mathematics this way. She suggests that teachers might like to tell the students about Mathematics and help them work it out, rather than providing little or no explanations at all. Asia's interpretation, although brief, clearly indicates how and why the practices utilised in classrooms influence non-participation.

Asia	Analysis
A regular maths lesson? We just have to, like it was our textbooks, we just had to look up our textbook, go to the page we had to go to and write in our book and work it from there. The teacher hardly ever explained it to us and so (.) it was CRAP. I would have liked the teachers to like, like TELL us about it, like help us work it out and like teach us how to do it properly, whereas we never got that.	*Asia learned Mathematics from a textbook.* *The teacher did not explain what was to be learned.* *Asia engages in a Discourse of non-participation.* *Asia vehemently opposes the dominant Discourse and the taken-for-granted practices therein. Social order is maintained through students waiting to be told what to do next.* *She explains how she would like to be taught. She wanted to be inducted into the Discourse of Mathematics and its community of learners. She also indicates she never got that.*

Asia explained that a regular Maths for her entailed learning from a textbook. She indicated that the teacher rarely explained the Mathematics and emphatically states that it was "crap." Jasmine in the next excerpt states that the teacher would tell the students which page to go to in the textbook but did not explain well enough for her to understand.

Excerpt 2: Jasmine

Jasmine begins by indicating that the teacher at school did not explain the Mathematics very well, and that few students understood what they were suppose to be learning. When she did not understand, Jasmine states, she had one "big" textbook that she would go back and reread in order to learn how to do it. Jasmine comments that this process helped a little. Nevertheless, she admits she still got questions wrong. Jasmine provides an elaboration of what she did in maths tests, which she states she "hated." She explains that she did not understand the questions and just wrote what she thought the answer might be. Jasmine returns to give an account of how she learned Mathematics in school. She explains that the students were told to turn to a page in their textbook and work on that page. The teacher would offer an explanation on the board, but then the students were required to work through the text and reread it if they did not understand. Jasmine concludes by indicating that she belonged to her class in a way that no one else understood anything they were learning.

Jasmine	Analysis
She would just tell us what to do. Like she would tell us to [turn to] a page in the textbook and then she would not really explain but, just basically. She done it on the board and said oh you do this, this and this. It was really explaining it (.1) it was just the same as the textbook.	*The teacher told students what to do. Unequal social structure. Jasmine learned Mathematics from a textbook. She could not "crack the code" of S/Mathematics. She indicates the teacher did not explain Mathematics well using the board. The teacher did not provide the means of cracking the code either.* *Jasmine indicates the explanations were the same as the textbook. The dominant discourse is maintained through the structure of the textbook.*
I would have to go back into the textbook and try to read over it and read over it again until you sort of understand it.	*She tries repeatedly to work through the textbook to see if she could understand Mathematics further. She struggles to access and understand the dominant Discourse.*

Just the person that [who] was sitting next to me, but they did not really know much more than me. I belonged in the way that no one else really understood anything that we were learning anyway.	*Jasmine seeks help from the person beside her.* *She indicates they did not know the Mathematics either. Students are kept on the boundaries of their learning community. Students struggle to access the dominant Discourse. Opportunities to move inbound from the periphery are limited as is access to learning the Discourse of Mathematics.*

Jasmine indicated the way she was taught Mathematics, stating that the explanations from the teacher were the same as the textbook. She reported that she would go back through the textbook but still found it difficult. Her comment that she "belonged in the way that no one else really understood anything" that they were learning is indexical of her experiences of learning Mathematics. In the next section, I draw on Damien's, and Trevor's accounts of their experiences of school and TAFE. In doing so, they elaborate the similarities and differences between these two contexts.

Excerpt 10: Damien

Damien's responses explain the similarities and differences between school and TAFE. He states the Mathematics is the same, however he indicates the teachers are different. That is, he explains that learning at TAFE is easier because the teachers provide support. He then indicates he has more of a sense of belonging at TAFE than at school. The teachers and students respect one another more at TAFE. Damien explains that he learns Mathematics at TAFE from a "kind of textbook" which is probably similar to the textbook used in school.

Damien	**Analysis**
For similar it is the same kind of maths, probably a bit easier these days, exactly the same. But the teachers are different. I think here [TAFE] is easier to learn because the teachers actually come around and show you what to do, they sit with you and actually show you how to do it when you know it, [they] make sure you know after they leave. That is different to where I went to school and they would show you so you would know, yeah, it is easier. Yeah probably a more sense of belonging here than was school. I can learn easier, the teachers help you more and you just feel like the teachers respect you and you respect them and that. Yeah, it is different, it is different, yeah it is the same but it is different in like some ways, different like problems and it is basically the same.	*Damien explains that the Mathematics he is learning is similar to school.The difference lies in the teacher' teaching style and attitude. The teachers at TAFE are supportive and interact with students. They explain the Mathematics so that students understand. That is, the teachers themselves are a resource. They articulate Mathematics in ways which engage with students' resources/student Discourses. Damien explains learning this way is different to learning at school. Students are not treated as ciphers. Damian indicates that he belongs more at TAFE than at school. Being accepted into the community of learners is a further resource for effective learning. The teachers are supportive and respectful of one another. These are crucial resources for learning. Hence, Damien engages in a Discourse of participation.* *He explains that TAFE learning is both different and similar to school.*

Damien has indicated that some of the Mathematics at school and TAFE was the same. However he suggests that the teachers at TAFE are different, stating that they are supportive and assist with his learning. He stated that he had a workbook at TAFE that was similar to the textbook he had at school. In the next excerpt, Trevor indicates that at TAFE he was treated like an adult, the Mathematics was common sense and he could take breaks when he needed them.

Excerpt 11: Trevor

Trevor compares his experience at TAFE with how an adult is taught at work. He indicates learning Mathematics at TAFE is more common sense and there is more support as he learns. For example, he states that he would raise his hand and the teacher would come and assist him with the task. His thoughts then return to school where he explains he could not learn at his own pace. This applied to when he was tested as well, thus he indicates he would only get half the test done, consequently failing. Trevor explains one consequence of that failure; his parents would "chuck psychos."

Trevor	**Analysis**
You get, as an adult, how they get taught, like at work and there is better things here, like you get any thing you want. You can have smoke breaks, and the maths is common sense.	*Trevor explains that at TAFE he is treated like an adult. He also explains he gets what he wants, e.g. smoke breaks. This different, less dominating approach to students is an effective learning resource. He states that the Mathematics he is learning is common sense. That is, it engages with his background, experience and Discourse.*
You get good support. Every time you get in trouble they try and get us out of trouble and things like and they keep us away from the shops so we do not get into bad behaviours or anything like that.	*The teachers are supportive of students and concerned to ensure a positive learning context without harsh sanctions. Again, these are significant resources for such students.*
Put your hand up and ask the teacher to come and help me. And she will come down and help me. If I got something wrong with addition, she will show me how to do and then I will get it right. She will set it out all for me and then I have to do it myself after that.	*The teacher supports students when they indicate they need help. Students are not treated as ciphers. The teacher explains to individual students how to work through Mathematics problems before expecting them to do the work themselves. A positive resource, here, the self-fulfilling prophecy!*

Trevor reported that he was supported well with his learning. He indicated that the teachers would come around and sit with him until he understood what he was learning. He stated that school and TAFE were not similar. He indicated the consequence of not keeping pace at school was failure and getting into trouble from his parents.

Why the discursive practices influence identities of participation

In their texts, Asia, Jasmine, Damien and Trevor emphasise the status of the dominant Discourse of S/Mathematics. They also highlight the disparity between what the rhetoric states and what actually occurs in classrooms. More importantly,

they epitomise why the discursive practices utilised in some Mathematics classrooms result in such struggles and the non-participation of students.

Recent recommendations advocate that teachers develop in learners the ability to communicate ideas and collaborate with others as they develop mathematical understandings (Department of Education, Training and Youth Affairs 2001; Ministerial Council on Education, Employment, Training and Youth Affairs 1998). Nevertheless, from the students' accounts it is evident these recommendations are not enacted in some S/Mathematics contexts, thus relegating groups of students to the periphery of their classrooms or eliminating them, leaving them with little chance of engaging in the Discourse of Mathematics in their learning communities. Further, the discursive practices drawn on maintain students in particular and subordinate subject positions, so that they identify themselves with particular social roles that are low in status and socially isolating. In such a context, success in learning mathematics is unlikely.

Arguably, the question of the discursive practices influential to participation or non-participation is clearly evident in the students' accounts above. This point is emphasised in Damien's and Trevor's experiences of school and TAFE. The power invested to the teacher as the legitimate powerful classroom member and to their control of the textbook as the legitimate authority for knowledge means they have control over the Discourse of Mathematics, thus controlling the contributions of students as less-powerful members. Consequently, contrasting subject positions are set up for teachers and students, and in the process, each learn their social role within the classroom context. Occupying these positions means that within the Discourse of Mathematics students learn what they are allowed and required to say and what not to say. Participation then, is influenced by the power exercised by the teacher over students in accordance with the discursive practices that attribute control and authority to the Mathematics teacher. Here, it is argued the way the discursive practices are imposed has substantial implications for the ways that students such as those in this chapter participate – or fail to participate – in their Mathematics learning.

In summary, the previous discussion has emphasised why the discursive practices employed in traditional S/Mathematics classrooms substantially influence identities of participation. In particular, it highlighted the unequal power sharing between teachers and students. Because of the teachers' access to the dominant discourse, they are positioned to exercise authority and constrain student access. This power manifests in struggles over identities and struggles over difference. Thus, the S/Mathematics discourse precludes students from using their home-based discourse, and hence it remains inaccessible to them. In this regard, unequal subject positions are set up, rendering some groups of students to a low status in the classroom or eliminating them from this context. The discursive practices drawn on in the S/Mathematics classroom prevent these students from moving inbound to full membership and participation. Regrettably, as is clearly evident in the excerpts above, such students develop a Discourse of non-participation.

Concluding discussion

From the interpretations provided by the students in this chapter, the traditional approach to the teaching and learning of Mathematics continues to function actively. Arguably, this approach misses the power of learning as social activity, where identities of participation are shaped through membership to a community of learning (Wenger 1998). Identity construction and participation are largely ignored, thus discounting how learning transforms identities and a learner's participation in the activities of a S/Mathematics classroom. Consequently, it disregards the relations with and between communities and people and overlooks that learning involves the construction of identities (Lave & Wenger 1991, p. 53).

In the framework proposed by a Social Theory of Learning, learning and identity are seen as interweaving threads, that is, 'they are aspects of the same phenomenon' (Wenger 1998, p.115) with each influenced by the relations between teachers and students. Such threads and relations index the gulf between traditional settings for learning and those of a social community of learners. That is, the nature and quality of the relations with and between students and teachers strongly influences learning, identity and participation. The analysis in this chapter reveals the power that teachers possess through the discursive practices of the Discourse of S/Mathematics to restrict student learning and participation, thereby marginalising students so that they exclude themselves or are excluded by the very community into which they are propelled. In this frame, the discourses the students engage to describe and interpret their Mathematics learning experiences can be construed as one that is about learning in isolation abstract and often difficult concepts from a textbook and from a blackboard, with minimal explanations or support provided by the teacher. The teacher in this context draws on a didactic style of teaching S/Mathematic to ensure the efficient transmission of knowledge.

Within TAFE Mathematics classrooms, the students construe Mathematics in some ways similar but also different to S/Mathematics classrooms. Damien and Trevor for example indicated that Mathematics is learned from a textbook and from the board but explanations and support is provided. The teachers adopted an interactive style to their teaching and focussed on student understanding rather than transmission of knowledge and procedures. In this context, students work at their own pace, together with their peers or on their own on Mathematical topics that have real connections to their experience and life beyond that community. Here the discursive practices of TAFE Mathematics are inclusive, enhancing student participation, building a positive identity and drawing them into the TAFE community of learning and practice.

In this Chapter, I have drawn on Critical Discourse Analysis as an analytical tool for understanding the powerful connections between the discursive practices of the Discourse S/Mathematics and TAFE Mathematics and their consequence in identity construction and participation in classrooms. Following the theoretical framework of a Social Theory of Discourse Theory and Critical Discourse Analysis provide a richly textured study of how tradition is a powerful determinant of

success and failure, and inclusion and exclusion in Mathematics classrooms. They also provide the ground for learning contexts that enable students to access and be members of a learning community so they can shape positive identities of participation, and engage in joint enterprise on meaningful tasks which are connected to the world beyond the classroom walls.

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